CLAIM AMENDMENTS

Amend claims: 1, 3-12, and new claims 14-25.

1. (Currently Amended) A process for the removal of ~~sulphur~~ sulfur compounds from a hydrocarbon stream, especially a gaseous hydrocarbon gas stream, comprising said ~~sulphur~~ sulfur compounds, which process comprises contacting said gas stream with an adsorbent comprising a zeolite having a pore diameter of at least 5 Å to adsorb the ~~sulphur~~ sulfur compounds thereon, the adsorption process followed by a regeneration process in the presence of water of used, loaded adsorbent, by contacting the said loaded adsorbent with a regeneration gas stream having a relative humidity of at most 30%, wherein the regeneration gas is an inert gas or an inert gas mixture.

2. (Original) A process according to claim 1, in which the hydrocarbon stream is natural gas, associated gas, a natural gas liquids stream, a natural gas condensate stream or a refinery gas stream.

3. (Currently Amended) A process according to claim ~~1 or~~ 2, in which the ~~sulphur~~ sulfur compounds are hydrogen ~~sulphide~~ sulfide, carbonyl-~~sulphide~~ sulfides, mercaptans, especially C_1-C_6 mercaptans, organic-~~sulphide~~ sulfides, especially di-C_1-C_4-alkyl sulphides, organic-~~sulphide~~ sulfides, especially di-C_1-C_4-alkyl ~~disulphides~~ disulfides, thiophene compounds, aromatic mercaptans, especially phenyl mercaptan, or mixtures thereof~~, preferably mercaptans~~, more especially C_1-C_4 mercaptans, and the total amount of ~~sulphur~~ sulfur compounds contained in the hydrocarbon stream is ~~preferably being~~ up to 3 vol% based on total gas stream~~, more preferably up till 1.5 vol%, more preferably up till 0.1 vol%, still more preferably between 1 and 700 ppmv, most preferably between 2 and 500 ppmv~~.

4. (Currently Amended) A process according to ~~any of~~ claim~~s 1 to~~ 3, in which the gas stream also comprises water~~, preferably is saturated with water, water preferably being removed before the removal of the sulphur compounds, more preferably~~ which is removed

by adsorbing the water on a zeolite having a pore diameter of less than 5 Å. ~~, even more preferably having a pore diameter of 3 or 4 Å~~.

5. (Currently Amended) A process according to ~~any of claims 1 to 4~~ claim 4, in which the gas stream also comprises hydrogen ~~sulphides~~ sulfide and optionally carbon dioxide and~~, preferably~~ up to ~~till~~ 2 vol% hydrogen ~~sulphide~~ sulfide~~, more preferably up till 0.5 vol% hydrogen sulphide,~~ with the hydrogen ~~sulphide~~ sulfide and part of the carbon dioxide ~~preferably~~ being removed by means of washing the gas stream with a chemical ~~and/or physical~~ solvent~~, more preferably with an aqueous alkaline solution, even more preferably with an aqueous amine solution~~.

6. (Currently Amended) A process according to ~~any of~~ claims ~~1 to~~ 5, in which the temperature of the zeolite adsorption process is between 10 and 60 °c, the pressure is between 10 and 150 bara, and the superficial gas velocity is between 0.03 and 0.6 m/s~~, preferably between 0.05 and 0.40 m/s~~.

7. (Currently Amended) A process for the regeneration of an adsorbent comprising a zeolite having a pore diameter of at least 5 Å and loaded with ~~sulphur~~ sulfur compounds by contacting the adsorbent with a regeneration gas stream having a relative water humidity less than 100%~~, especially less than 80%, suitably for a period up till 24 hours, preferably up till 12 hours~~.

8. (Currently Amended) A process according to ~~any one of~~ claims ~~1 to~~ 7, in which the adsorbent comprises zeolite dispersed in a binder~~, preferably a molsieve, the zeolite preferably of zeolite type a or zeolite type X~~.

9. (Currently Amended) A process according to ~~any of~~ claims ~~1 to~~ 8, in which the adsorbent is in the form of at least two beds, one bed comprising zeolite having a pore diameter of 5 Å~~, preferably 3 or 4 Å~~, the second and, if present, further beds comprising a zeolite having a pore diameter of more than 5 Å~~, preferably at least 6 Å, more preferably molsieve 13X~~.

10. (Currently Amended) A process according to ~~any of~~ claims ~~1 to~~ 9, in which the regeneration is carried out at a pressure between 1 and 150 bara, a temperature between 200 and 400 °c~~, preferably between 230 and 350 °C~~, and a superficial gas velocity of less than 0.20 m/s~~, preferably between 0.02 and 0.15 m/s~~, the regeneration gas stream ~~preferably being nitrogen, hydrogen or a hydrocarbon gas stream, more preferably a treated gas stream which is obtained by a process according to any of claims 1 to 9~~.

11. (Currently Amended) A process according to ~~any of~~ claims ~~1 to~~ 10, in which the regeneration gas stream is a gas stream obtained by saturating the stream at a temperature below the regeneration temperature~~, preferably at least 50 °C below the regeneration temperature, more preferably 75 °C below the regeneration temperature~~.

12. (Currently Amended) A process according to ~~any of~~ claims ~~1 to~~ 11, in which the regeneration gas stream has a relative humidity between 0.1 and 30%.

13. (Currently Amended) A process for reducing the degradation of a ~~sulphur~~ sulfur loaded adsorbent, wherein the ~~sulphur~~ sulfur loaded adsorbent is regenerated in the presence of water by contacting the said loaded adsorbent with a regeneration gas stream having a relative humidity of at most 100%, wherein the regeneration gas is an inert gas or an inert gas mixture.

14. (New) A process for the removal of sulfur compounds from a hydrocarbon stream, wherein said hydrocarbon stream contains a sulfur compound selected from the group consisting of hydrogen sulfide, carbonyl sulfide, mercaptans, organic sulfides, organic disulfides, thiophene compounds, aromatic mercaptans and mixtures thereof, said process comprises:

contacting said hydrocarbon stream with an adsorbent comprising a zeolite having a pore diameter of at least 5 Å to absorb said sulfur compound thereon to thereby provide a sulfur loaded adsorbent; and contacting said sulfur loaded adsorbent with a regeneration gas stream having a relative humidity of at most 30%, wherein the regeneration gas comprises an inert gas.

15. (New) A process according to claim 14, wherein said hydrocarbon stream is selected from the group consisting of natural gas, associated gas, a natural gas liquid, natural gas condensate or refinery gas.

16. (New) A process according to claim 15, wherein said mercaptans include C_1-C_6 mercaptans, said organic sulfides include di-C_1-C_4-alkyl sulfides, organic disulfides include di-C_1-C_4-alkyl disulfides, said aromatic mercaptans include phenyl mercaptan, and the total amount of said sulfur compounds contained in said hydrocarbon sstream is up to 3 vol% based on total gas stream.

17. (New) A process according to claim 16, wherein said hydrocarbon stream is treated to remove water therefrom prior to contacting said hydrocarbon stream with said adsorbent contacting said hydrocarbon stream with a zeolite having a pore diameter of less than 5 Å.

18. (New) A process according to claim 17, in which said hydrocarbon stream prior to contacting with said adsorbent, comprises hydrogen sulfide in the range up to 2 vol% hydrogen sulfide, and a part thereof is removed by means of washing with a chemical solvent.

19. (New) A process according to claim 18, in which the temperature of the step of contacting said hydrocarbon stream with said adsorbent is between 10 and 60 °c, the pressure is between 10 and 150 bara, and the superficial gas velocity is between 0.03 and 0.6 m/s.

20. (New) A process for the regeneration of adsorbent comprising a zeolite having a pore diameter of at least 5 Å and which is loaded with a sulfur compound by contacting the adsorbent with a regeneration gas stream having a relative water humidity of at least 0.1% and less than 100%.

21. (New) A process according to claim 20, in which said adsorbent further comprises said zeolite dispersed in a binder.

22. (New) A process according to claim 21, in which said adsorbent is contained in at least two beds, with one bed comprising zeolite having a pore diameter of 5 Å, and with a second bed comprising a zeolite having a pore diameter of more than 5 Å.

23. (New) A process according to claim 22, in which the contacting step is carried out at a pressure between 1 and 150 bara, a temperature between 200 and 400 °c and a superficial gas velocity of less than 0.20 m/s.

24. (New) A process according to claim 23, in which said regeneration gas stream is a gas stream obtained by saturating the stream at a temperature below the regeneration temperature.

25. (New) A process according to claim 24, in which said regeneration gas stream has a relative humidity between 0.1 and 30%.